

The rising profile of women academics

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Over the past several decades, Canadian women have made significant inroads into many traditionally male-dominated occupations. Increased labour force participation and higher levels of education have led to women's growing presence in a wide range of occupations (Hughes 1990, 1995). One of these is full-time university teaching.¹

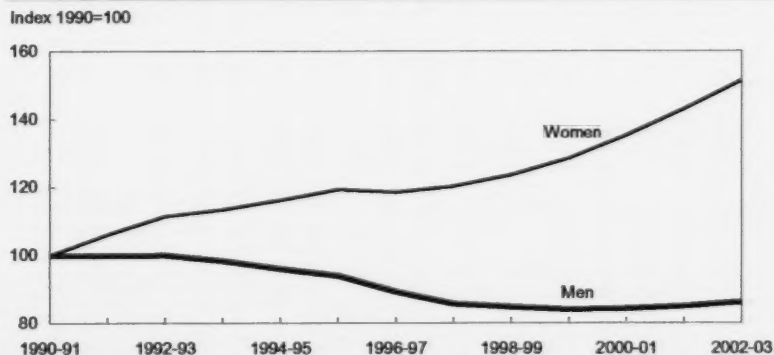
Women's representation in university faculties resonates on several levels. For one thing, women on staff provide positive role models for the growing number of female students entering university and on the verge of a career. Having women in prominent academic positions can encourage female students to consider a career in academia or other similarly well-paid, high-status, male-dominated fields. And while one does not have to be a woman to be supportive of female students, some have suggested that women make their classrooms more inclusive by using teaching styles and examples that are friendlier to their female audience. Finally, at a time when universities are increasingly expected not only to deliver high quality education, but also to contribute to the economic and social well-being of their local communities, equity concerns may prompt employers to ensure that their workforces reflect the qualified candidates available.²

The imbalance in representation at the university level appears to be decreasing as more and more women pursue educational paths that could lead to university-level positions. Indeed, between the

academic years 1960-61 and 1989-90, the number of women teaching full time at Canadian universities rose tenfold, almost doubling their share of full-time faculty from 11% to 20% (Lee 1993). Since this time, the number has continued to grow, increasing by over 50% between 1990-91 and 2002-03—more than double the growth in women's full-time employment in general. By contrast, during the same period, their male counterparts declined by 14% (Chart A), while overall full-time university staff returned to its 1990-91 level. This reduction for men combined with the growth for women served to increase women's share of full-time university teaching staff to 30% in 2002-03.³

However, women's representation at the university level has not been uniform at all ranks of academic appointment and across all fields of instruction (Lee 1993). This article looks at the growth in the number of women teaching full time at universities between 1990-91 and 2002-03, examining changes in their representation by academic rank, tenure, and field of instruction (see *Data source and definitions*).⁴ Academic credentials, age structure, and earnings are also

Chart A: Women have made impressive gains as full-time faculty since the early 1990s.



Source: University and College Academic Staff System

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Data source and definitions

The University and College Academic Staff System is an administrative database, which provides annual information on the number and characteristics of all full-time teaching staff in degree-granting institutions in Canada. It contains demographic, education program, and salary information.

The analysis covers all full-time teaching staff employed in public or private degree-granting institutions as of October 1 of the 1990-91 to 2002-03 academic years. These include universities, colleges affiliated with universities (for example, Renison College, affiliated with the University of Waterloo), and specialized colleges (for example, Nova Scotia College of Art and Design, Royal Military College, or Saint Augustine's Seminary). Teaching staff in community colleges or trade and vocational schools are excluded.

Teaching staff are referred to as university staff, and the institutions themselves are described as universities. Included are senior academic staff (for example, deans, chairpersons, directors), academic staff in teaching hospitals, visiting academic staff, and full-time research staff who have an academic rank and salary scale similar to teaching staff. Academic staff on sabbatical or maternity leave are also included.

Excluded are administrators solely responsible for administration (for example, president, vice-president, registrar, comptroller), administrative assistants, librarians, non-academic support staff, markers, demonstrators, lab assistants, graduate teaching assistants, postdoctoral fellows, and academic staff who have been hired as researchers without academic rank whose salary scales are different from teaching staff.

Part-time university teaching staff are not examined in this study. Information on this workforce is available from a previously published study (see *Part-time university faculty*).

Salaries are based on annual rates of pay. This includes additional payments or honoraria for administrative functions, but excludes such items as employee benefits, overtime pay and compensation for extension work. Also

excluded is employment income from other sources, such as private contracts or consultancy. Salaries of individuals who were employed full time but for less than 12 months have been adjusted to an annual rate. For staff on sabbatical leave, the annual rate of pay is the salary they would have received had they been teaching. Only teachers paid according to regular salary scales are included in the earnings analysis. Those on leave without pay and certain staff in denominational institutions are excluded.

Academic rank

Full professor: the most senior position, always tenured.

Associate professor: mid-level with requirements varying considerably between institutions and departments. In most institutions the position is tenured, though if awarded to a non-tenured person it is usually tenure-track.

Assistant professor: entry-level, never tenured, although in most institutions the term is used for tenure-track positions.

Lecturer or instructor

Staff ranked below lecturer or instructor (for example, coaches) and ungraded staff are grouped together in the 'other' category.

Qualifications

The following nine categories are used to designate the highest level of education attained by university staff: doctorates (for example, PhD, EdD, DS, DSW); professional degrees (excluding master's and bachelor's degrees), which consist of medical and paramedical degrees only (for example, MD, DDS, DDM, DVM); master's degrees and equivalent licences (for example, MA, MSW, MBA); graduate diplomas; bachelor's degrees (for example, LLB, BA, BSc., BEd); professional designations other than a degree (for example CA, CGA, RIA, teaching certificates); undergraduate diplomas; no degree, diploma or professional designation; unknown educational qualification.

examined. Finally, factors that could affect the sustainability of women's growing presence in academia are addressed through a look at issues related to retirement, new appointments, and the changing proportion of doctorates being awarded to women in various fields of study.

A decade of impressive gains for women

In 2002-03, almost 11,000 women full-time faculty members were teaching at more than 70 universities (Table 1). Except for a slight drop in 1996-97, women's presence increased steadily after 1990. In contrast,

the number of men was relatively stable during the early part of the 1990s, but dropped steadily from 1993-94 to 1999-2000. This was followed by marginal increases from 2000-01 onwards. As a result of these opposing trends, full-time faculty were slightly fewer in 2002-03 than in 1990-91, but the proportion of women had increased from 20% to 30%.⁵

Women accounted for a significant portion of new appointments during the period.⁶ In 1990-91, 35% of new appointments were women; by 2002-03, this had risen somewhat to 39%. The majority (62%) of new appointments were at the assistant professor rank.

Table 1: Full-time university faculty

	1990-91	1994-95	1998-99	2002-03
Total - All ranks	36,430	36,400	33,670	36,050
Men	29,300	28,120	24,860	25,270
Women	7,120	8,280	8,800	10,780
% women	19.6	22.7	26.2	29.9
Full professor	13,680	14,850	13,870	13,930
Men	12,640	13,270	11,970	11,530
Women	1,040	1,580	1,900	2,390
% women	7.6	10.7	13.7	17.2
Associate professor	12,630	12,770	12,010	11,680
Men	10,160	9,670	8,520	7,790
Women	2,470	3,100	3,490	3,890
% women	19.5	24.3	29.1	33.3
Assistant professor	7,730	7,300	6,300	8,650
Men	5,170	4,490	3,630	5,130
Women	2,570	2,820	2,660	3,520
% women	33.2	38.6	42.3	40.7
Lecturer, instructor or other	2,380	1,480	1,490	1,800
Men	1,340	700	740	820
Women	1,050	780	750	980
% women	43.9	52.6	50.4	54.6

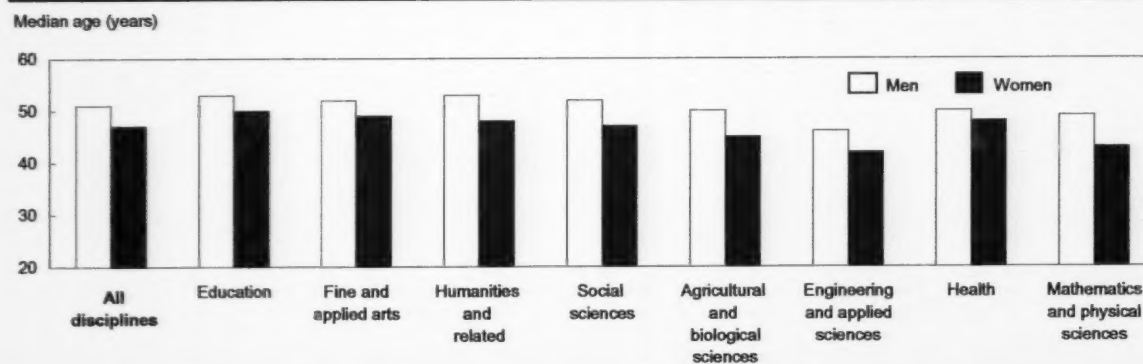
Source: University and College Academic Staff System

These were more evenly distributed between men and women (59% versus 41%) than appointments at higher levels. For example, at the full professor level (8% of all appointments), only 15% of new appointments were women, a marginal improvement from 12% in 1990-91 (data not shown).

Faculty women younger than their male colleagues

The age structure of university faculty is comparatively older than the workforce in general, with a median age of 49 years in 2002-03.⁷ This may reflect the long years of study required to meet the necessary qualifications for teaching at the university level, as well as the lingering effects of deep funding cuts by provincial governments that hindered the hiring of young people during the early 1990s (Lewington 1995). Nevertheless, female faculty members tended to be younger than their male colleagues, with a median age of 47 versus 51 (up from 44 and 48 in 1990-91).

This age differential held in all fields of instruction (Chart B). The youngest women were in engineering and the applied sciences (median age of 42), and mathematics and the physical sciences (43). The corresponding median ages for men were 46 and 49. Women tended to be older in the more traditional fields, such as education (50), fine and applied arts (49), the humanities (48), the humanities (48) and health (48).

Chart B: Faculty women tend to be younger than their male colleagues.


Source: University and College Academic Staff System, 2002-03

Strengthened presence in both traditional and non-traditional disciplines

The vast majority of female full-time faculty members are clustered in certain disciplines. In 2002-03, the social sciences accounted for the highest proportion of both women (28%) and men (26%). But, as has been the case for decades, women remain more concentrated in another three of the eight fields studied—namely, health (mainly in nursing and rehabilitation medicine), humanities, and education. Together these accounted for 52% of women versus 35% of men on full-time faculty. In contrast, only a minority of women (9%) taught in engineering and applied sciences, or mathematics and physical sciences (compared with 28% of men).

What has improved over time, however, is the share of women in all fields of instruction. From 1990-91 to 2002-03, the proportion of full-time faculty positions they held increased dramatically and steadily in all disciplines, including the non-traditional fields of engineering and applied sciences (from 3% to 10%)

and mathematics and physical sciences (from 7% to 13%) (Chart C). But the process is slow, as women entering academia need time to advance through the system (Chen 2004).

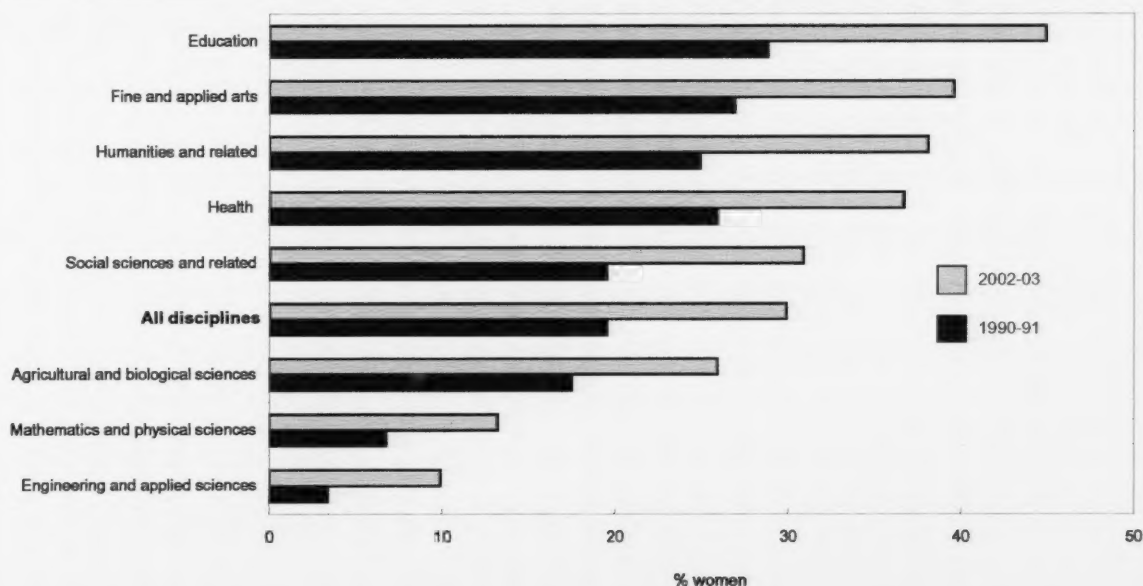
Notable gains in tenure status and academic rank

Women made notable gains in tenure status over the period.⁸ Only 14% of all tenured staff were women in 1990-91, but this had almost doubled to 26% by 2002-03. The comparative figures for tenure-track positions were 34% and 38% respectively.⁹

Almost half of all male tenured faculty were 55 or older, compared with only one-third of their female colleagues. Most (60%) tenured women were between 40 and 54 years of age. Few of either sex were below 40.

Related to tenure (and perhaps a more telling indicator of status) is the presence of women within the different academic ranks: full professor; associate professor; assistant professor; and lecturer, instructor

Chart C: Women have strengthened their presence in all disciplines.



Source: University and College Academic Staff System

or other. Although at successively higher ranks women continued to hold a declining portion of academic posts, their relative standing improved greatly during the 1990s (Chart D). While only 8% of all full professors were women in 1990-91, the proportion had more than doubled to 17% by 2002-03.

Similarly, only one in five associate professors in 1990-91 were women; by 2002-03 this had increased to one in three. Women's presence grew in the lower ranks as well, rising to 41% of all assistant professors (from 33%) and 55% of all lecturers, instructors and other faculty (from 44%). These gains were seen in all disciplines, including those traditionally dominated by men.

In spite of gains made over the past decade, women continue to have a weaker presence at the upper academic ranks and among tenured faculty generally. This partly reflects the time it takes to reach these senior levels. Women have entered university in large numbers only relatively recently (Lee 1993) and

Table 2: Full-time faculty by age and rank*

	Both sexes	Men	Women	Incidence of women	Distribution of	
					Men	Women
Less than 40						
All ranks	6,660	4,280	2,390	36	100	100
Full professor	120	100	20	19	2	1
Associate professor	1,380	960	420	30	22	17
Assistant professor	4,630	2,950	1,680	36	69	70
Lecturer, instructor or other	540	270	270	51	6	11
40 to 54						
All ranks	17,610	11,660	5,950	34	100	100
Full professor	6,080	4,830	1,250	21	41	21
Associate professor	7,140	4,550	2,590	36	39	44
Assistant professor	3,480	1,900	1,580	45	16	27
Lecturer, instructor or other	910	380	530	58	3	9
55 and over						
All ranks	11,740	9,320	2,420	21	100	100
Full professor	7,720	6,600	1,120	15	71	46
Associate professor	3,160	2,280	880	28	25	36
Assistant professor	510	270	250	48	3	10
Lecturer, instructor or other	350	170	180	51	2	7

Source: University and College Academic Staff System, 2002-03

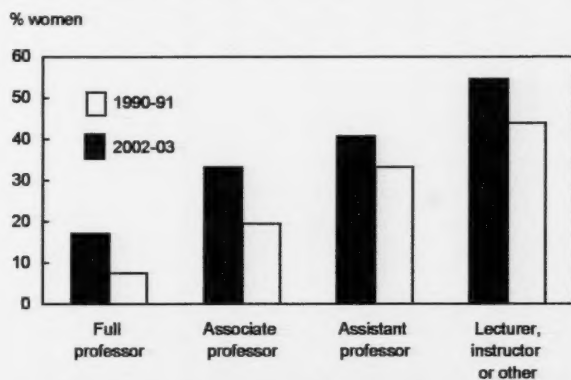
* May not add up to totals in other tables because of missing values for age.

thus are younger, on average, than their male colleagues. Indeed, when age is factored into the analysis of women's presence by rank, its importance becomes more apparent (Table 2).

In 2002-03, women accounted for 36% of all full-time faculty under age 40, 34% of those between 40 and 54, but only 21% of those 55 and older. At the full professor level, however, only 19% under 40 were women, as were 21% of those between 40 and 54, and 15% of those 55 and older. Similarly, at the associate professor level, women made up only 30% of those under 40, 36% of those between 40 and 54, and 28% of those 55 and older. The lower proportions of women under 40 in these upper academic ranks (compared with women aged 40 to 54) may be related to some being absent from the pool of qualified female candidates because of family responsibilities.

Another aspect of gains among women academics is the rising proportion of female faculty members who are full professors or associate professors (and a corresponding decline at the lower levels of assistant professor and lecturer). In 1990-91, only 15% of women working full time held full professorships, while 35% held associate professorships. By 2002-03, the proportions stood at 22% and 36% respectively, for a total of 58% in the upper echelons. While not yet

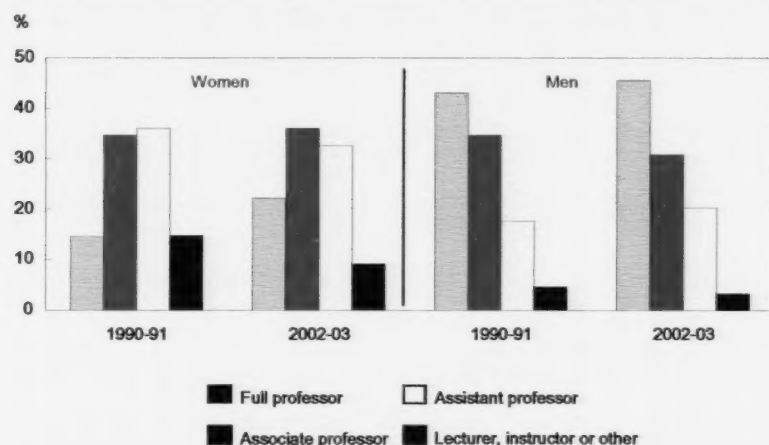
Chart D: Women have made notable gains in academic rank.



Source: University and College Academic Staff System

at the high concentration of their male colleagues (nearly 80% of whom were full or associate professors in 2002-03), the situation for women appears to be slowly improving (Chart E).

Chart E: A rising proportion of female faculty members are in the upper ranks.



Source: University and College Academic Staff System

A closer look at academic rank also reveals important age distinctions between the sexes, shedding more light on current trends. For example, 7 in 10 women under 40 in 2002-03 were assistant professors, similar to their male counterparts; a further 18% had attained the rank of associate or full professor, as had 24% of the men. However, significant differences were evident in older age groups, particularly at the full professor level: 41% of men but only 21% of women aged 40 to 54 were in this category, as were 71% of men but only 46% of women 55 and over (Table 2).

Educational qualifications rising

As competition for jobs in the general economy has intensified, academic credentials have increased. This is also true in the academic labour market, where more and more full-time faculty members hold doctorates.

In 2002-03, 81% of all male faculty members held a doctorate, as did 72% of their female counterparts—a significant change from 1990-91 when the figures were 73% and 56%. Virtually all remaining faculty members held either a master's (nearly 20% of women and 10% of men), or a professional degree (5% of women and 6% of men).¹⁰

The qualifications gap between men and women appears to be related to academic rank. The discrepancy was much smaller in the upper ranks—86% of men who were full professors held doctorates, as did 83% of women; similarly, 81% of men and 80% of women who were associate professors held doctorates. At each level, the proportions went up over the decade (Table 3).

However, when looked at another way, a different picture emerges. While almost half of all male faculty members with doctorates were full professors, only 26% of their female counterparts held such positions in 2002-03 (Chart F).

Table 3: Full-time faculty with doctorates

	Men		Women	
	1990-91	2002-03	1990-91	2002-03
	% with doctorate			
All ranks	73	81	56	72
Full professor	84	86	81	83
Associate professor	73	81	66	80
Assistant professor	62	79	54	70
Lecturer, instructor or other	20	29	14	18

Source: University and College Academic Staff System

This represented some improvement for women since 1990-91, while the situation for men remained unchanged. By contrast, 40% of female faculty members with doctorates were associate professors and another 32% were assistant professors. The corresponding proportions for men were 31% and 20%. In short, women with doctorates tended to be found in the lower ranks, with little change in the standings since 1990-91.

This seems to suggest a lack of upward mobility for women, particularly to full professor. However, other factors may also be at work. Firstly, women's lack of seniority may reflect their relatively recent entrance in large numbers into the academic labour market, which would tend to make them

younger on average. Indeed, the proportion of women with doctorates who had reached the full professor level by 2002-03 increased dramatically with age, from 1% among those under 40 to 53% among those 55 and older; the corresponding proportions for their male counterparts were 3% and 75% (Table 4).

Secondly, women's tendency to experience more work interruptions (because of maternity leave or periods of part-time employment while raising children), particularly during the earlier part of their career, may also influence their professional experience and opportunities for promotion (see *Do babies matter?*). Differences in time spent on research activities and in research productivity may be potential reasons for women's

Chart F: Women with doctorates: underrepresented at full professor level, over-represented at assistant professor.

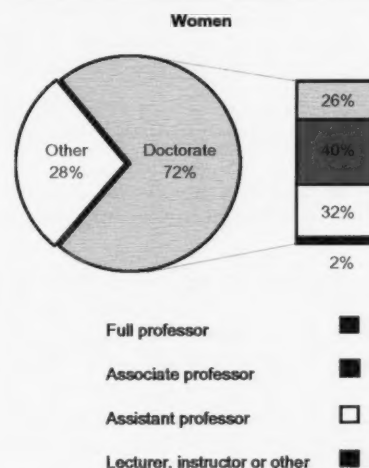
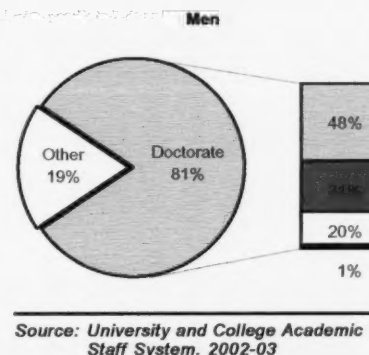


Table 4: Full-time faculty with doctorates by age and rank, 2002-03*

	Both sexes	Men	Women	Distribution of	
				Men	Women
				%	
Under 40					
All ranks	5,220	3,500	1,720	100	100
Full professor	110	90	20	3	1
Associate professor	1,250	880	370	25	21
Assistant professor	3,770	2,470	1,300	71	75
Lecturer, instructor and other	90	50	40	2	2
40 to 54					
All ranks	13,650	9,430	4,230	100	100
Full professor	5,240	4,200	1,040	45	25
Associate professor	5,770	3,700	2,070	39	49
Assistant professor	2,430	1,410	1,030	15	24
Lecturer, instructor and other	210	120	90	1	2
55 and over					
All ranks	9,350	7,580	1,770	100	100
Full professor	6,590	5,660	930	75	53
Associate professor	2,360	1,700	650	22	37
Assistant professor	300	150	140	2	8
Lecturer, instructor and other	110	70	40	1	2

Source: University and College Academic Staff System

* May not add to totals in other tables because of missing values for age.



Source: University and College Academic Staff System, 2002-03

continued disproportionate absence at the higher ranks, particularly full professor (Toukoushian 1999; Donaldson and Emes 2000¹¹).

Women earn less than their male colleagues

In 2002-03, the median salary of female faculty members was some \$13,000 lower than that of their

Do babies matter?

A recent American study, *Do babies matter? The effect of family formation on the lifelong careers of academic men and women*, found that babies not only matter a great deal, but their timing is also important (Mason and Goulden 2002). The findings showed a consistent and large gap in achieving tenure between women who had started a family within five years after completing their doctorate compared with men in a similar position. This gap persisted across all disciplines and types of institutions. For most academics, these years represent a critical time in career development accompanied by high demands and high job insecurity.

Similarly, a Canadian study of the workforce in general found a wage advantage associated with delayed motherhood (Drolet 2002). Again, this advantage arose, at least in part, because the acquisition of job-related skills and significant wage growth are concentrated at the start of a career, which may coincide with decisions regarding marriage and children.

male colleagues. With university salaries scaled according to rank, however, much of the difference can be attributed to women being disproportionately in the lower ranks. When the median salaries of men and women of equal academic rank are considered, the difference narrows substantially—from \$6,100 at the full professor level (where women earned 94% of men's salaries in 2002-03) to \$2,600 (96%) at the assistant professor level (Table 5).

The principal subject taught also affects median salary differentials. In 2002-03, male-female differences in median salaries were lower among faculty members in education (where men's median earnings were \$7,300 higher) and fine and applied arts (\$9,500 higher)—disciplines with higher concentrations of women and lower median salaries generally. By contrast, greater earnings differentials were noted in social sciences (\$14,000), mathematics (\$13,400), and engineering (\$12,800)—disciplines with the highest median salaries and comparatively lower proportions of women. These differences likely arise, in part, because women tend to be younger in these fields, and therefore less likely to have attained senior positions or to be at the top of their salary scale. Moreover, in recent years, universities have introduced 'market supplements' to boost salaries in areas where they have not been competitive with the private sector—for example, engineering, computer sciences, business and law (Schmidt 2004).

A similar picture emerges when academic rank and principal subject taught are considered together. For example, among female full professors in education, where the highest percentage of women of that rank are found, the earnings differential was \$2,500 in 2002-03. By contrast, much larger differences were found among full professors in engineering (\$9,500) or mathematics (\$7,800), disciplines having by far the lowest percentages of women at the full professor level. The persistence of lower median earnings among female faculty, even within the same academic rank and field, may be explained in part by differences in age, experience and seniority (Lee 1993).¹²

Another factor related to academic salaries is the federal government's Canada Research Chairs program, launched in 2000 to create 2,000 elite professorships with top salaries (Schmidt 2004). So far, almost 70% of these positions have been filled, the vast majority (80%) by men.¹³ It is not known how this program will affect salary differences.

Women's increased presence in academia likely to continue

Women's growing presence in academia is likely to continue. Opportunities for the recruitment and advancement of female candidates are expected to be created from two important sources—the growing pool of women with doctorates and the retirement of senior male faculty.

As regards the former, women have made significant strides in obtaining the education required to pursue an academic career (Toutkoushian 1999). Indeed, the number of doctorates being awarded to women rose significantly between 1989-90 and 1999-2000, and their share of doctoral degrees climbed steadily after 1993-94 (Table 6).¹⁴

Despite these gains, some disparities remain in women's representation among doctoral recipients across the different disciplines. For example, in 1999-2000, women accounted for more than two-thirds of all doctorates awarded in education; about half of those in the social sciences, the humanities, and fine and applied arts; and almost half (45%) in health. By contrast, they continue to be poorly represented in the traditionally male-dominated fields. Indeed, women made up about one-fifth of all doctorates awarded in mathematics and the physical sciences, and only 13% of those in engineering and the applied sciences.

Table 5: Median salary by sex, rank and field of instruction

	Both sexes	Men	Women	Difference	Earnings ratio (women/ men)
			\$		%
Total	83,350	87,210	73,990	13,220	85
Academic rank					
Full professor	99,390	100,370	94,270	6,100	94
Associate professor	81,360	82,520	78,670	3,850	95
Assistant professor	63,310	64,400	61,780	2,620	96
Lecturer, instructor or other	57,630	59,450	56,090	3,360	94
Principal subject taught					
Education	80,230	83,910	76,580	7,330	91
Full professor	96,350	97,270	94,790	2,480	97
Associate professor	81,370	82,270	80,230	2,040	98
Assistant professor	62,650	62,650	62,650	0	100
Lecturer, instructor or other	61,230	61,140	63,080	-1,940	103
Fine and applied arts	75,770	79,530	70,050	9,480	88
Full professor	94,400	96,130	92,610	3,520	96
Associate professor	78,270	80,000	76,290	3,710	95
Assistant professor	57,260	58,240	55,580	2,660	95
Lecturer, instructor or other	52,280	55,250	51,680	3,570	94
Humanities and related	76,240	81,980	69,050	12,930	84
Full professor	96,160	97,290	92,270	5,020	95
Associate professor	77,890	80,280	75,740	4,540	94
Assistant professor	56,620	56,920	56,460	460	99
Lecturer, instructor or other	50,960	49,740	51,920	-2,180	104
Social sciences	86,200	90,330	76,300	14,030	84
Full professor	99,900	101,420	94,270	7,150	93
Associate professor	83,390	84,730	79,520	5,210	94
Assistant professor	64,320	65,840	62,860	2,980	95
Lecturer, instructor or other	57,180	58,180	55,720	2,460	96
Agricultural and biological sciences	83,970	87,250	74,770	12,480	86
Full professor	96,730	97,580	93,850	3,730	96
Associate professor	78,650	80,050	76,130	3,920	95
Assistant professor	64,100	64,620	63,970	650	99
Lecturer, instructor or other	56,870	62,060	55,310	6,750	89
Engineering and applied sciences	87,780	89,140	76,300	12,840	86
Full professor	103,250	103,900	94,380	9,520	91
Associate professor	82,650	82,900	81,710	1,190	99
Assistant professor	70,430	70,650	67,840	2,810	96
Lecturer, instructor or other	66,000	67,000	61,370	5,630	92
Health	82,500	87,050	75,000	12,050	86
Full professor	101,840	102,660	98,220	4,440	96
Associate professor	81,440	81,960	80,330	1,630	98
Assistant professor	65,000	65,350	64,000	1,350	98
Lecturer, instructor or other	57,750	55,010	58,070	-3,060	106
Mathematics and physical sciences	86,360	88,260	74,850	13,410	85
Full professor	100,270	100,870	93,040	7,830	92
Associate professor	82,000	82,460	78,320	4,140	95
Assistant professor	65,000	65,000	65,000	0	100
Lecturer, instructor or other	63,000	63,140	61,740	1,400	98

Source: University and College Academic Staff System, 2002-03

Table 6: Earned doctorates

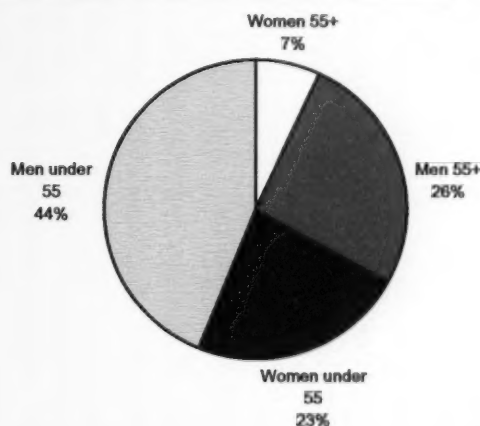
	1989-90	1991-92	1993-94	1995-96	1997-98	1999-2000
Both sexes	2,550	3,030	3,440	3,820	3,850	3,710
Men	1,760	2,100	2,430	2,550	2,470	2,200
Women	790	930	1,010	1,280	1,380	1,510
% women	31	31	29	33	36	41

Source: University Student Information System

Nevertheless, the latter discipline indicates a marked improvement since 1989-90, when the proportion was a mere 5%.

The retirement of faculty members would appear to be a pressing concern for universities, since one in three academics was 55 or older in 2002-03 (Chart G). The vast majority were men, and accounted for over one-quarter of all employed faculty that year. In comparison, women 55 and over made up only 7% of the academic workforce.

A related issue is mandatory retirement, usually at age 65. This policy, which varies from province to province, may affect the timing of retirement of faculty

Chart G: In 2002-03, faculty men were closer to the traditional retirement age of 65.

Source: University and College Academic Staff System

members, with important implications for job openings, promotion opportunities, and ultimately the male-female distribution in universities (see *Mandatory retirement*).

Summary

Women have increased their presence among full-time university faculty during a period of shrinking public funding, rising enrolments, and increasing tuition costs. This trend has been fuelled by the rising educational attainment of women generally, as well as a growing academic workforce reaching retirement age that consists mainly of men. As a result of these dynamics, close to 11,000 women were full-time faculty members of Canadian universities in 2002-03, accounting for 30% of all full-time academics—a notable improvement from about 20% only a decade earlier.

Women strengthened their presence in both traditional and non-traditional disciplines and made notable gains in tenure status and academic rank. Their median salaries remain below those of their male colleagues, though the gap generally narrows when academic rank and field of study are taken into account.

Educational qualifications have increased for both sexes, with an increasing proportion of full-time university faculty members at all academic ranks holding doctorates. Nevertheless, women with doctorates remain underrepresented at the full professor level. The relatively recent entrance of women in large numbers into the academic workforce may be part of the explanation. These women tend to be younger and have not had time to rise to the rank of full professor. Women academics also tend to experience more work interruptions than men (related to maternity leave and childcare), they may dedicate less time to research generally, and they are more willing to accept part-time or instructor-level employment.

As of 2002-03, just over one in four Canadian academics were men aged 55 and over. The anticipated retirement of the majority of them in the next decade or so—in conjunction with the growing pool of women with doctoral degrees—bodes well for the future hiring of women, their rising representation at all levels of academe, and their continued advancement into the higher ranks. Indeed, women's increased presence in the groups that feed into senior academic positions should lead to continued improvement in their representation in the years ahead (Statistics Canada 2003).

Mandatory retirement

In 1990, the Supreme Court of Canada issued a landmark ruling on mandatory retirement in upholding the practice in a case involving university professors. The court stated that although mandatory retirement is discriminatory, it is a reasonable limit on an individual's rights. Specifically, the Court concluded that:

[Mandatory retirement] ensures continuing faculty renewal, a necessary process to enable universities to be centres of excellence. Universities need to be on the cutting edge of new discoveries and ideas, and this requires a continuing infusion of new people.

— *McKinney v. University of Guelph*,
[1990] 3 S.C.R. 229

University administrations favour mandatory retirement policies since they facilitate planning and help anticipate staffing needs, which are premised on the expectation that the employee will retire at an established age. Without mandatory retirement, its supporters charge that payroll, benefit and pension costs would increase.

On the other hand, faculty members in particular oppose mandatory retirement. Aside from the infringement on their freedom of choice, they fear it to be a means by which universities can save money at the expense of their most experienced members—those whose experience and reputations are necessary to attract and supervise graduate students, mentor

junior faculty members, and recruit senior scholars for prestigious Canada Research Chair positions. As well, mandatory retirement can pose an obstacle to teaching staff, particularly women who have begun their academic careers later in life or whose careers have been shortened by interruptions to raise children. These individuals have likely accumulated smaller pensions as a result, and may be forced to retire at what could be the peak of their careers (Tamburri 2003).

In 2002, only 2% of full-time academics in Canadian universities were aged 65 or older. Proportions in two of the four provinces without mandatory retirement, however, were above average—5% in Manitoba and 4% in Quebec. On the other hand, in five of the six provinces where employers have recourse to mandatory retirement, rates were 1% or less (except in Saskatchewan, where the University of Saskatchewan has a mandatory retirement age of 67). Moreover, according to a forthcoming study, these differences may have widened in recent years. Nevertheless, even in the absence of mandatory retirement, it appears that only a small fraction of academics are likely to keep working much beyond age 65 (Worswick forthcoming).

In all provinces, faculty members working past 65 were overwhelmingly men.

Provisions governing mandatory retirement

Jurisdiction	Provisions	Full-time faculty 65 or older in 2002 (% men)
Federal	Not discriminatory if the person has reached the normal age of retirement for employees in the same type of work.	2% (88%)
British Columbia	Age 65 if required by employer.	1% (87%)
Alberta	None.	2% (84%)
Saskatchewan	Age 65 if required by employer.	3% (89%)
Manitoba	None.	5% (90%)
Ontario	Age 65 if required by employer. Legislation to end restriction currently being considered.	1% (90%)
Quebec	None.	4% (87%)
New Brunswick	Can be set under terms of a retirement or pension plan. Otherwise, employees obliged to retire may file a complaint under provincial human rights legislation.	Less than 1% (F)
Nova Scotia	Age 65 if required by employer; however, all employees must be treated equally.	Less than 1% (85%)
Prince Edward Island	None.	F
Newfoundland and Labrador	Can be set under terms of a retirement or pension plan.	Less than 1% (80%)

Source: Human Resources and Skills Development Canada

Part-time university faculty

Because of incomplete information on part-time faculty, summary results are provided from a previously published study where missing data were imputed using a specific regression procedure based on reported information (Omiecinski 2003). That study used the University and College Academic Staff Survey—Part-time staff. However, it was conducted only for the academic years 1990-91 to 1997-98. Information collected for each part-time teacher was similar to that collected for full-time faculty (see *Data source and definitions*).

Between 1990-91 and 1997-98, Canadian universities relied increasingly on part-time teaching staff, whose ranks increased 10% from 25,700 to 28,200. Part-time faculty members made up 46% of all faculty members in 1997, up from 41% seven years earlier.

In 1997-98, women accounted for a larger proportion of part-time (42%) than full-time (26%) faculty members. By discipline, the ratio of full-time men to women ranged from a low of about 2 to 1 in education to a high of 12 to 1 in engineering and the applied sciences. Among part-timers,

these ratios ranged from about 1 to 1 in fine and applied arts to about 5 to 1 in engineering and applied sciences. Full-time men outnumbered their female colleagues by about 9 to 1 in mathematics and the physical sciences, while the corresponding ratio for part-time faculty was 4 to 1. Part-time men outnumbered women in all teaching fields except nursing.

Part-time faculty tend to be younger. In 1997, 37% were below the age of 40, compared with only 17% of full-time faculty. Similarly, only 30% of part-time faculty were 50 or older, versus 50% of those working full time. Women part-timers tended to be younger than their male counterparts—41% of women versus 34% of men were under 40.

In 1997, full-time faculty members had higher levels of education than their part-time colleagues: 82% held a doctorate and 15% a master's compared with 42% and 38% of part-timers. Male part-time faculty members also had higher levels of education than their female colleagues: 50% had a doctorate compared with only 29% of women.

Perspectives

■ Notes

1 Although women have long been the majority in the teaching professions, their share diminishes drastically at successively higher levels of instruction (Lee 1993). In 2000, women made up 61% of all full-time educators. However, 80% of elementary school and kindergarten teachers were women, compared with 50% of secondary school teachers, 45% of college and vocational instructors, and only 29% of university professors.

2 Donaldson and Emes (2000) argue that women's participation rates within academic ranks and their frequency of administrative appointments are also ways in which women can gain the authority necessary to effect change—change being the promotion and maintenance of gender equity and sensitivity in academic institutions and the wider community.

3 It has been suggested that the decline in male professors may be caused partly by some men with doctorates choosing the more attractive financial option of working for private industry or as independent consultants as opposed to university teaching. In 2000-01, for example, 22% of men with doctorates were professionals in natural and applied science occupations, up from 15% in 1990-91; by contrast, 29% were university professors in 2000-01, down from 31% in 1990-91. Private sector options may, however, be less stable and involve travel and long hours, making them less attractive to women with similar academic qualifications.

Nevertheless, the percentage of women with doctorates working in the natural and applied science professions also increased during this period (from 8% to 11%).

4 For reasons of data availability, the focus of this study is on full-time university faculty only. See *Part-time university faculty* for a discussion of this group.

5 Within this time frame, every province saw a reduction in the number of male faculty members and an increase in both the number and proportion of women. Prince Edward Island, British Columbia, Alberta, Quebec and Saskatchewan, however, reported increases in the overall number of full-time university faculty from 1990-91 to 2002-03.

6 New appointments refer to a specific university. These individuals may or may not have held a position at another university.

7 In 2001, the median age of the core working-age population (20 to 64) was 41.3 years, up from 38.1 years a decade earlier. This represented the biggest 10-year increase since 1921.

8 Tenure grants professors the right not to be fired without cause after an initial probationary period—the justification being that this provides academic freedom by preventing the firing of an individual for openly disagreeing with authorities or popular opinion. However, opponents of tenure charge that it also removes incentives for

productivity. In most cases, tenure is not awarded upon hiring. Rather, a position is designated as eligible for tenure or 'tenure-track.' The criteria for promotion involve a combination of research, teaching and community service (that is, providing expert advice), as well as intellectual and professional development. The weight given to each component varies among faculties, departments and disciplines. Typically, a candidate will be employed for about five years before a decision is taken on tenure, but this practice also varies from university to university.

9 Information on tenure status is not available for staff in Quebec universities and is not included in these calculations.

10 Faculty members in some disciplines are less likely to have obtained a doctorate. For example, those in engineering and computer science may have obtained, at most, a master's degree in engineering, science or a related discipline; those in medicine and nursing, an MD (medical doctor) or RN (registered nurse); social work, an MSW (Master of Social Work); commerce and management, an MBA (Master of Business Administration); law, an LL.M (Master of Laws).

11 Donaldson and Emes found that women academics collaborate more frequently than their male colleagues, and are much less likely to be single or first authors than one of several contributing authors. This assessment of research contribution was based on an analysis of articles published and books reviewed by the *Canadian Journal of Higher Education* between 1987 and 1997 (32 issues).

12 The female-to-male earnings ratio for full-year, full-time workers stood at 71% in 2001. However, women working full time tend to work fewer hours per week than men—38.7 hours versus 42.5 hours in 2001. Over the course of a year, this difference can amount to as much as five weeks of work. Accounting for the difference reduces the earnings gap (Galarneau and Earl 1999). The female-to-male earnings ratio for doctorate holders is also an important comparative indicator, given the link between earnings and education. In 2000, this ratio stood at 79%, indicating that a higher education helps close the differential. Earnings or wage gaps in the strictest sense refer to what can be explained by sex alone, after all other contributing factors have been accounted for using a multivariate analysis. Such an analysis was not performed for this study. For further discussion, see Drolet (2001).

13 The most lucrative of these positions are known as 'Tier 1 Chairs,' and are awarded to outstanding researchers acknowledged by their peers as world leaders in their field. For each Tier 1 Chair, the university receives \$200,000 annually for seven years. As of November 2004, women accounted for a minority (17%) of these positions. Tier 2 Chairs are granted to exceptional emerging researchers, who are acknowledged by their peers as having the potential to become leaders in

their field. They are worth \$100,000 annually over five years, and to date only 22% have been awarded to women. For more information on the Canada Research Chairs program, see their Web site at www.chairs.gc.ca/web/program/index_e.asp.

14 Universities are the leading employment destination of persons with doctorates. Indeed, in 2000-01, about one in three doctorate holders was a university professor; this held true for both men and women. Teaching assistants, college and vocational instructors, and secondary and elementary teachers accounted for another 10%. Other occupations where people with doctorates are also concentrated include professionals in natural and applied sciences (for example, chemists, biologists, computer scientists) (19%); senior managers (11%); health professionals (for example, physicians) (6%); policy and program officers, researchers and consultants (5%); and psychologists (4%). Differences between men and women were observed in some of these occupations. In particular, psychology is a more popular option among women with doctorates, while professional occupations in the natural and applied sciences are more typical of men.

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